

TAKING INTO ACCOUNT FOOD AND NUTRITION SECURITY IN THE MEASUREMENT AND ASSESSMENT OF HUMAN DEVELOPMENT

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Abstract

Human Development Index (HDI) has become a very useful tool for measuring development and making inter-country comparisons. The observation of its trajectory and evolution by country arouses the curiosity of students of development and invites them to question the underlying causes of the behaviour of the index. In order to provide answers to such questions the Human Development Report complements the HDI by offering varied, valuable and relevant statistical information related with every dimensions of human development. From its very beginning, experts have debated about the strengths and weaknesses of the report and have acknowledged a need to include new indicators in the measurement of human development. It is in this context that Mahbub ul Haq, the creator of the Human Development Reports said: "Here we have a broad framework; if you want something to be included in this list, which may deserve a table in the Human Development Report tell us what, and explain why it must figure in this accounting. We will listen". As a response to this demand, this paper proposes the inclusion of food security in the measurement of human development, as well-being can only be achieved when there is not food insecurity.

Keywords: *Food Security, Human Development, Indicators*

1. Human Development: Concept, Measurement and Analysis

It is opportune to start by establishing the general foundations of the matter of discussion. This paper deals about the measurement of human development. Hence, defining such a concept and studying and analysing how it is measured is the starting point to which this first section is devoted.

The concept of human development was formulated by the United Nations Development Program in 1990 and can be summarized as follows: Human development is the process of enlarging people's choices. These choices are infinitive and can change over the time but some of them are changeless and common to every human being: adequate nutrition, access to safe water, better health services and access to knowledge. The primordial goal is to satisfy the most basic of human needs. A country's level of development may be considered as the degree to which basic human needs are met.

1.1. GDP as an indicator of human development

Gross Domestic Product (GDP) and GDP per capita have been used for a long time to measure and compare development, on the grounds that development can be identified with economic growth since welfare arises from economic growth.

Economic growth is important for the achievement of development as it creates the “means” to reduce deprivation. However, if growth is not properly managed, its advantages can be squandered. There is no an automatic and direct relationship between economic growth and human development (Sen, 1999).

It is more meaningful to measure development as a reduction in the extent of deprivation amongst the most needy rather than as a process of enrichment that tends to benefit most those who are already rich. Moreover, poverty is not equivalent to lack of income but rather to a shortage of entitlements. Thus, income growth is not an end but a means by which to achieve development. But it is not right to equate development with economic growth because income is significant as a means of obtaining entitlements which are intrinsically important but it is not the only instrument through which opportunities and entitlements can be generated. Besides, the relationship between income and entitlements varies between different communities and even between families and individuals (Sen, 1999).

1.2. Human Development Index and Human Development Reports

In the nineties in international debates on development policies it was acknowledged that development is more than merely material growth and that it should have broader objectives related to human wellbeing (Fukuda-Parr, 2002). Development is, therefore, no longer simply a matter of economics and the concept of Human Development emerges.

For a long time the perennial question of those concerned with development has been: How much is a country producing? From the nineties the leading question has been: How are people going on? The reason for this change is an increasing acknowledgement that the real objective of development is to enlarge people’s choices (UI Haq, 1995a).

It is within this context that the concept of the Human Development Index (HDI) emerged. HDI is an index used to measure and compare development between countries since 1990 and it is calculated as the mean of three components: GDP per capita, life expectancy at birth (LE) and educational level (EL) – measured as adult literacy rate and combined gross enrolment ratio for primary, secondary and tertiary school.

The three variables included in the HDI are inter-related. When GDP per capita increases, LE and EL also tend to increase. However, HDI establishes a ranking of countries that differs significantly from the ranking obtained when considering only GDP per capita. For example, the position occupied by Equatorial Guinea is one hundred places below its position when only GDP is considered. Similarly, Botswana and South Africa occupy a lower place (about 70 places below) their positions when only GDP is taken into account. On the contrary, other countries as, for example, Sweden, Cuba or Uruguay have higher quality health and social services than could be expected considering their GDP per capita.

There are countries which have achieved an increase in LE and EL as a result of economic growth, for example, Algeria, Iran or Mexico. Others have achieved economic growth out through improvement of social services as for example post-reform China, Sri Lanka and Indonesia. Amartya Sen (1999) distinguished between two types of successful development which he termed respectively Growth-Mediated and Support-Led processes.

HDI has become a very useful tool for measuring development and making inter-country comparisons. The observation of its trajectory and evolution by country arouses the curiosity of students of development and invites them to question the underlying causes of the behaviour of the index. In order to provide answers to such questions the Human Development Reports (HDR) published by the UNDP complements the HDI by offering two other types of information: statistical information and analytical information.

Varied, valuable and relevant statistical information related with every dimensions of human development is provided by the HDR. This statistical information is grouped in tables including

indicators with the aim of putting forward a global assessment of the achievements of countries with regard to different fields of development. Main tables are organized by topics. Indicators which are considered to warrant inclusion in the HDR change from year to year. For example, recent reports include statistics about cell telephone users or women who play a role in politics that were not included in the early reports.

Statistical data provide a framework for the analysis of global human development. Every year, the HDR analyses an important issue with the aim of stimulating debate which might eventually lead to the implementation of new policies with repercussions on human development.

1.3. HDR encourages innovative use of statistics

The most significant contribution of the HDR has been the Human Development Index (HDI) that has always aroused and continues to arouse great expectations. The success of the index rests on the fact that it provides the basis for a ranking of countries from the most to the least developed as well as a classification of countries between high, medium and low developed (Streeten, 2000). For this reason, from its very beginning, experts have debated about its strengths and weaknesses and have acknowledged a need to include new indicators in the formulation of the HDI.

It is in this context that Mahbub ul Haq, the creator of HDR, made the point that: “Here we have a broad framework; if you want something to be included in this list, which may deserve a table in the Human Development Report (and may even be considered for inclusion in the Human Development Index) tell us what, and explain why it must figure in this accounting. We will listen”⁴

The HDI does not include any indicator of the extent to which the most basic need of all, that of food security is met. This has been acknowledged as an important gap: “How can we incorporate food security in the HDI? We do know how to make shoes of leather and energy out of coal or water power. But we know very little about how precisely to transform social services, adequate food and certain institutional arrangements into long, healthy, productive, creative, enjoyable lives” (Streeten, 2000).

At present is widely acknowledged that the expansion of education and health constitute important targets of development that have to be considered in assessing poverty together with income (Kanbur, 2001). There is now a tendency to identify the concept of human development with its measure (Fukuda-Parr, 2002). However, it would be a great mistake to concentrate too much on the HDI, or any other such aggregative index. The real merit of the Human Development Report lies in the attention it brings to bear on so many aspects of development. The openness of the creators of the Report to suggestions to extend the ways in human development is evaluated is also important (Sen, 2000).

2. Why to include Food and Nutrition Security Dimension in the measurement and assessment of human development?

Arguments are presented bellow to defend the idea that, being both an end and a means of development, food and nutrition security should be taken into account in the measurement of human development, as well-being can only be achieved when there is not food insecurity (Afonso and Trueba, 2005).

⁴ Quotation from the article by Amartya Sen, (2000), entitled “*A Decade of Human Development*”, published in the first edition of the Journal of Human Development.

Good nutrition it is an end of development as it is a basic human need: a chronically hungry person will never reach a satisfactory state of well-being. A hungry person is deprived of a basic need and of the most fundamental of human rights (Streeten, 1982). It is also a means of development as it conditions every aspect of development: malnutrition is reflected in high rates of disease and mortality (Grantham-McGregor et.al., 1999), (Caulfield, et.al. 2004a) and (Caulfield, et.al. 2004b), limited neurological development (Scrimshaw, 1998) and low productivity among current and future generations (Arcand, 2001). It is a major constraint to a country's ability to develop economically, socially, and politically (Who, 1997). Observation and analysis of statistical data provides different examples of how an improvement in development can be achieved by improving nutrition. Support-Led Development can be promoted by investing in food security.

The measure of adequate nutrition happens to be a good indicator of lack of poverty: health, shelter, educational level and health level are reflected in the nutritional status (Lipton, 1983) and so that nutritional situation of a country is internationally acknowledged as an indicator of development (OMNI, 1998). In order to achieve a sustainable improvement of the situation of a country food needs should be known and considered in any strategy of development (FAO, 2004).

Hunger and malnutrition are internationally acknowledged as a main problem to be solved by humanity. When the Millennium Development Goals were established (Millennium Project, 2000) the first goal was to eradicate extreme poverty and hunger with the target of reducing by half the proportion of people who suffer from hunger by 2015. It is fair to acknowledge that International Community pays more attention to malnutrition problem and identifies it as a main concern that should be implicit in any human development program. There is an increasing awareness of the importance of achieving world food and nutrition security for development. Yet, hunger and malnutrition remains being a problem largely silenced. A datum that corroborates it is the fact that malnutrition problem is overlooked both in the Human Development and in the World Health Organization Reports.

Malnutrition has never been considered sufficiently relevant for human development as to be the analysis topic of any of the 18 reports published till date (UNDP, 1990-2008). Different topics that rise world concern have been addressed, as for example, democracy, cultural diversity, international cooperation, world water crisis or climatic change. But world food security has never been the topic of discussion even after 2000 when the Millennium Development Goals fix the world agenda for human development.

Hunger and malnutrition are also overlooked when evaluating world health. World Health Organization (WHO) publishes every year data concerned with health and causes of mortality. Although WHO acknowledges that malnutrition is a main source of many illnesses that afflict humanity it is not included as an explicit cause of mortality in the statistics.

The inclusion of food and nutrition security in the measurement and assessment of human development could be a tool of fighting against hunger and malnutrition. And seeks to meet both: the general demand of new dimensions to measure the complex multidimensional concept of human development and the specific demand to take into consideration the nutritional situation of countries. It seems that "the inability to recognise malnutrition as a predominantly social problem is widespread in the medical profession. This inability causes the problem being addressed in an inappropriate and, sometimes, callous manners" (Ramani et. al., 2006).

3. Why is it necessary the elaboration of a new indicator of food and nutrition security?

The inclusion of food security dimension in the measurement and evaluation of human development requires the elaboration of a new indicator. To measure food and nutrition

insecurity, different indicators have been proposed but they are inadequate to assess the nutritional situation of a country at per capita level for different reasons.

Some of them only contemplate one dimension of nutrition. This is the case of FAO's indicator which is an estimation of the proportion of people having access to fewer kilocalories than the minimum daily requirement for a healthy life (Mernies, 2003) and only measures energy deficiency (food quantity) neglecting micronutrients deficiency (food quality). Different indicators measure deficiency of particular micronutrients but do not include other dimensions of nutrition.

There are other indicators that are indirect indicators and thus, the relation between them and the real nutritional situation is indirect and difficult to determine. This is the case of the proportion of children under five who are underweight, that is an indicator of the nutritional status of children and is also an indicator of the nutritional status population as a whole (Onis, and Blössner, 2003). This indicator can reflect other dimensions of nutrition besides quantity of energy (Smith and Haddad, 2001) but only gives a partial approach of the situation. Underweight may be an outcome of other causes different from malnutrition (Osmani, 1992) and some undernourished children are not underweight (Van den Broeck et. al. 1994). Besides, the nutritional status of children is not always extrapolating to the whole population (FAO, 2001).

Being aware of these deficiencies, the appropriateness of creating new systems to evaluate the nutritional situation considering all relevant factors has been emphasized: malnutrition is much more widespread than energy deficiency, and likely larger than deficiencies identified through anthropometric measures (Mason, et. al. 2001).

4. A new Indicator of Food and Nutrition Security (ISAN by its Spanish Acronym)

A new Indicator of Food and Nutrition Security (ISAN) is proposed. The design and formulation of ISAN has been developed in a PhD thesis and was presented and discussed in a Seminar held in FAO in July, 5, 2007. The ISAN has been designed as a mean of three sub-indexes that respectively measure three dimensions of food and nutrition security – quantity, quality and biological utilization) as shown in the figure below (Figure 1).

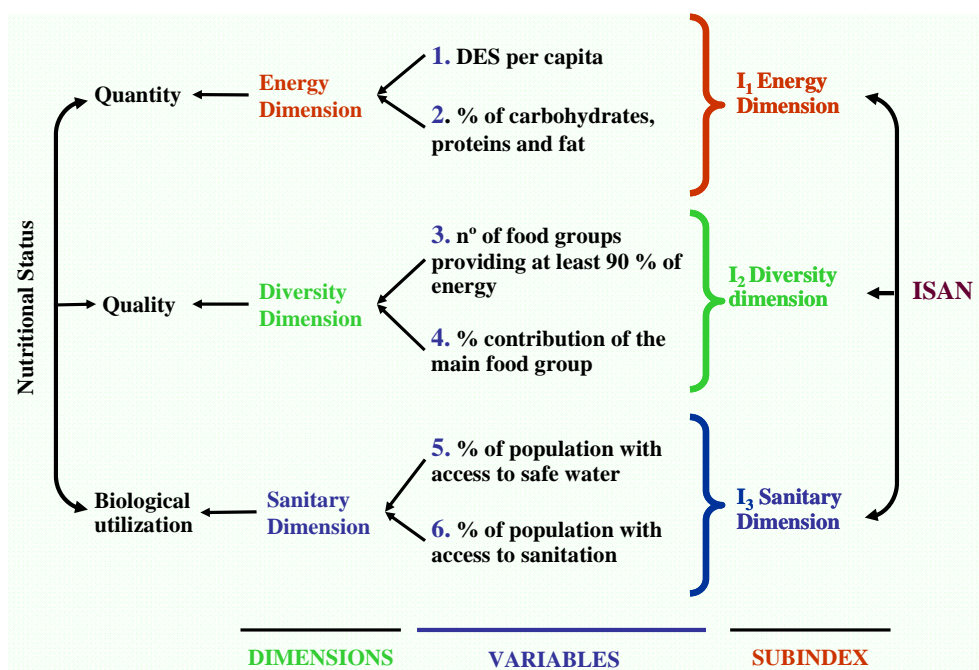


Figure 1. Food and Nutrition Security Index (ISAN). Towards a multidimensional Index.

Access to enough food energy in adequate proportions of macronutrients is measured through I_1 sub-index that is developed from the combination of two variables: Dietary Energy Supply (DES) per capita and the proportion of DES of carbohydrates, proteins and fat.

Access to needed food is determined through I_2 sub-index that measures diversity dimension combining two variables: number of food groups providing at least 90 per cent of energy and share of the contribution of the main group.

Variables used to evaluate the sanitary dimension obtaining I_3 sub index are proportion of population with access to safe water and proportion of population with access to sanitation.

The relevance of ISAN lies in the fact that it brings together considerations of dietary energy supply and the quality of nutrition. It also breaks new ground by bringing in a water/sanitation dimension.

The validity of ISAN rests on the selection of the variables involved and the criteria used to combine them into a single index, which requires scientific knowledge of the factors conditioning nutritional status. ISAN fulfils the conditions of good indicators, in particular: it proposes targets to reach and measures the degree of attainment of such targets; it is sensitive to changes and changes happened in any variable are measurable in the short term and are reflected in the index; it has temporal and spatial specificity as there are data of the variables that conform the index for a large number of countries; it is efficient in terms of cost benefit as can be readily applied at low cost because its variables require the use of data that is already available on FAO and UNDP websites. In addition, the estimate of malnutrition in the world using ISAN is very consistent with previous estimates.

5. ISAN as an indicator of Human Development

The ISAN seeks to respond to the general quest for new indicators which throw greater light on the complex and multidimensional concept of development, and on the particular issue of its nutritional dimensions. It also responds to a FAO's quest for better indicators of food and nutrition security in order to enlarge the range of measurement including the trends of micronutrients, besides the usual points linked to food energy (Mason, 2002).

This paper does not propose that ISAN should replace the publication of the other food security indicators, but argues that it should be treated as a complement to the information already being published.

It also argues that ISAN should be presented in a table in the Human Development Report in order to complement the statistical information with which to assess human development achievements at country level. The inclusion of ISAN as a forth dimension of HDI could also be considered.

5.1. Presenting ISAN and its Components in a Single Table

The usefulness and efficacy of an indicator when utilizing it for assessing and evaluating progress or and in the process of policy decision-making process require that those who are interested know how to interpret the data and understand them correctly. If the process of obtaining the data is not clearly understood the implications of the indicator could be misinterpreted (UNDP, 2006).

The way in which the indicator is presented is important to a better understanding of its message. Since ISAN is an index which combines three dimensions, obtained as a mean of three sub-indexes, it is advisable that the table in which it is normally presented should also include the three sub-indexes. When ISAN is accompanied by the three sub-indexes from

which it is derived, an observer interested in the nutritional situation of a country can check, through examining the three sub-indexes, which is the main source of weakness and the reason why the ISAN has not reached a higher value. In order to facilitate the interpretation of the data, a short description of what each sub-index measures can be included at the head of each column, as illustrated below (Figure 2).

Country	Energy Dimension (Sufficient food and balance of macronutrients) I_1	Diversity Dimension (Needed Foods and micronutrients) I_2	Sanitary Dimension (Environmental Safety) I_3	ISAN $1/4 (I_1 + I_2 + 2I_3)$
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Figure 2: A Statistical Table for the ISAN.

5.2. Incorporating the ISAN within the HDI: HDI-2

When the Human Development Index was designed as a mean of three dimensions (life expectancy, educational level, and income per capita) the convenience of including other variables that reflect other development dimensions was considered. Among those variables, the inclusion of DES (kilocalories per capita) was considered but it was not included in the end as it was concluded that it was not a good indicator of malnutrition because malnutrition is conditioned by many other factors (UI Haq, 1995b).

The ISAN reflects these different factors and has been designed as an index such that its incorporation in the HDI as a new dimension should be feasible. Although there is a high correlation between the three-dimensional HDI and ISAN, the ranking obtained by applying this new tetra-dimensional HDI, which has been called HDI-2, differs substantially from the ranking obtained with the three-dimensional HDI. The new ranking differs from the former ranking in such a way that positions of countries fall by as much as 22 places or rise by up to 20 places.

6. Conclusion

Undernutrition denotes a flaw in the development process where it has failed to reach certain groups of the population. In order to achieve a sustainable improvement in a country's situation, food needs must be identified and considered as part of any strategy of development (FAO, 2004). Therefore, no appropriate method to measure development can afford overlooking the nutritional dimension: food security should be given explicit attention in the assessment and measurement of human development. In this paper, the incorporation of a Food and Nutrition Security Index that enables to establish a ranking of countries in per capita terms, in official databases related to human development has been proposed. This might lead countries to increase their level of attention (and resources) to the reduction of hunger and malnutrition.

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